# Software Standards

## Return Success Status

All methods must return a status, 0 = success, all other exit status’ are enumerated in a header file and are bit flags, not decimal values, e.g.

1 = No antenna

2 = Low Power

4 = Faulty SOC

this enables failure modes to be combined into a response status code. This is the only parameter that is returned by the method as a return value.

## Passing parameters into a method

- any collection of data is a pointer to the data, associated with it is a int variable defining the length of the input

- strings must be null terminated

## Receiving data from a method

- pointer to a structure, the structure definition is in a header file

- pointer to a pointer for undefined arrays

- a pointer to the location for an fixed vairable size, e.g. int

Other methods are allowed, but these must be agreed first

Library layout

All files must be within the following structure

/src <- source (.c) files

/inc <- header (.h) files

/test <- all test scripts

These must be within a single directory that can be referenced by other software

File Names

For the user accessible functions, a filename per function, all helper filenames begin with bt\_

## Single Header

Single header file defining all user functions, called the name of the module, e.g. radar.h and this is referred to as the library

all helper functions are preceded with bt\_ in the function name.

## Variables

No global variables.

Versioning

There must be a user function that returns a version number. It is anticipated that a form of version control will be used internally and a known version issued to Bostin Technology for validation

## Testing

Testing, supplied with the library is a complete set of test scripts that when run, will pass and validate a minimum of 95% of the code base.

## Ports for Communcations

Ports for communications, the library will have a function that creates the comms port and returns it to the calling application. It will then require this value to be passed back to it for communication. This is to enable the calling application to share the port with other libraries etc. Each time the comms port is used, it will be released afterwards, but not closed. All parameters required for the comms is to be passed in via a structure.

Log Files

Where the architecture allows it, the library files must produce log files that will enable diagnosis by the user. This level must be configurable to enable skilled individuals further diagnosis.

Commenting

All functions defined in the header file will have a short description of their functionality, details of any parameters passed in our out. All code commenting will follow XXXXXX style guide.

## Makefile

An example makefile is to be provided or the required parameters to enable software to be compiled correctly.

## Licence Header

The following standard licence header will be included in each file

\* File:   <filename>

 \* Author: <insert name here>

 \*

 \* Created on <insert date>

 \*

 \*Example code for <insert description>

 \*

 \*

 \* This program is free software; you can redistribute it and/or modify

 \* it under the terms of the GNU General Public License as published by

 \* the Free Software Foundation as version 2 of the License.

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 \* For more information refer to [www.BostinTechnology.com](http://www.BostinTechnology.com)

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## Function Descriptors

Each function is defined in a h file with the following commenting

/\*! \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\* Overview: Initialises the SPI port for the Gain Control

\*

\* This method using the bcm2835 library to set the required settings to set the

\* SPi port for the Gain Control chip

\*

\* param[in/out] in : binary value require for the desired gain

\*

\* return NOTHING : No response

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